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Study of the reactions of phosphorous esters with alkyl halides by the thermographic method - Communication 1. Reactions of aromatic phosphites

Arbuzov B., Fuzhenkova A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

1. A study was made of the reaction of aryl and mixed alkyl-aryl phosphites with various halogen compounds by the method of differential thermal analysis (thermography). 2. The rearrangement of these phosphorous esters under the action of alkylhalides is accompanied by two exothermic effects: the first, as shown in A. E. Arbuzov's scheme, is the result of the formation of an intermediate addition product between the alkyl halide and the phosphorous ester, and the second is the result of the decomposition of the intermediate product into the final rearrangement product and alkyl halide. 3. The results of the thermographic study of the rearrangement of phosphorous esters show that in the series of phosphorous esters (C6H3O)3P→(C6H5O)2P -OC2H3→C6H5OP(OC2H52 the stability of the intermediate product diminishes. 4. The temperature at which the rearrangement occurs rises with increase in molecular weight in a homologous series of alkyl halides and is dependent also on the nature of the halogen: alkyl iodides react at a lower temperature than the corresponding bromides. © 1960 Consultants Bureau Enterprises, Inc.

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